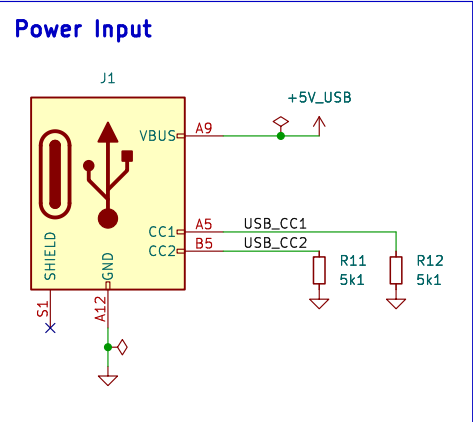


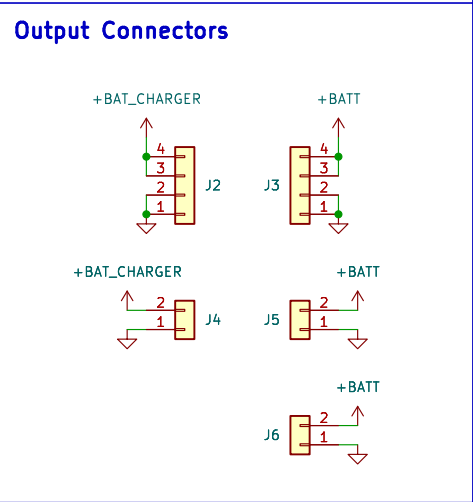
Power Input



Output Connectors

The diagram illustrates the wiring for five output connectors (J2, J3, J4, J5, J6) connected to two power sources: +BAT_CHARGER and +BATT. Each connector has four pins labeled 1, 2, 3, and 4. The wiring is as follows:

- J2:** Pin 4 is connected to +BAT_CHARGER, Pin 3 is connected to +BATT, Pin 2 is connected to +BATT, and Pin 1 is connected to +BATT.
- J3:** Pin 4 is connected to +BAT_CHARGER, Pin 3 is connected to +BATT, Pin 2 is connected to +BATT, and Pin 1 is connected to +BATT.
- J4:** Pin 2 is connected to +BAT_CHARGER, and Pin 1 is connected to +BAT_CHARGER.
- J5:** Pin 2 is connected to +BAT_CHARGER, and Pin 1 is connected to +BAT_CHARGER.
- J6:** Pin 2 is connected to +BATT, and Pin 1 is connected to +BATT.



Charger IC

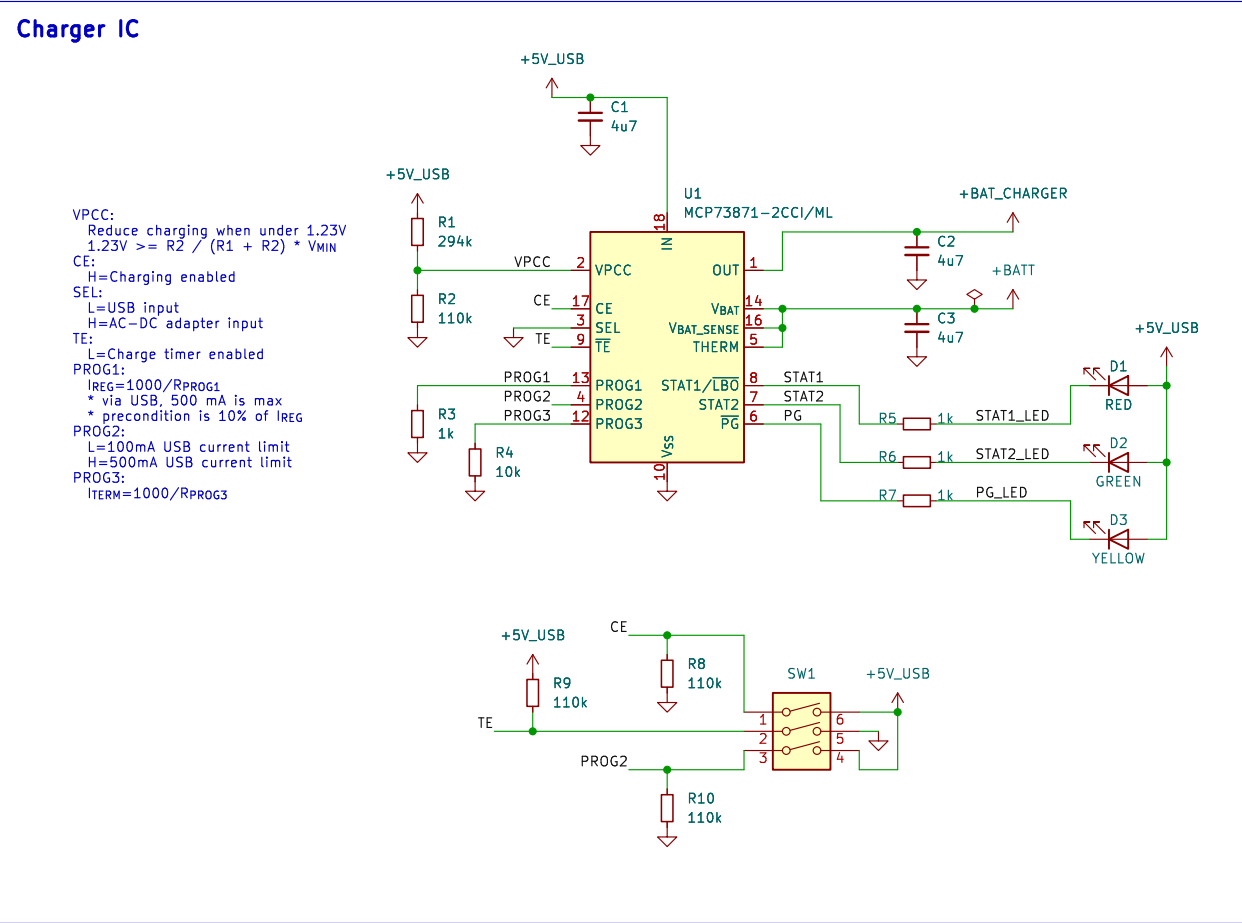
VPCC:
 Reduce charging when under 1.23V
 $1.23V \geq R2 / (R1 + R2) * V_{MIN}$
 CE:
 H=Charging enabled
 SEL:
 L=USB input
 H=AC-DC adapter input
 TE:
 L=Charge timer enabled
 PROG1:
 $I_{REG}=1000/R_{PROG1}$
 * via USB, 500 mA is max
 * precondition is 10% of I_{REG}
 PROG2:
 $L=100mA$ USB current limit
 $H=500mA$ USB current limit
 PROG3:
 $I_{TERM}=1000/R_{PROG3}$

The diagram shows the MCP73871-2CCI/ML IC with the following connections:

- VPCC (Pin 2):** Connected to +5V_USB through resistor R1 (294k).
- CE (Pin 17):** Connected to +5V_USB through resistor R2 (110k).
- TE (Pin 9):** Connected to ground through resistor R3 (1k).
- PROG1 (Pin 13):** Connected to ground through resistor R4 (10k).
- PROG2 (Pin 4):** Connected to ground through resistor R5 (1k).
- PROG3 (Pin 12):** Connected to ground through resistor R6 (10k).
- VBAT (Pin 14):** Connected to +BAT.
- VBAT_SENSE (Pin 16):** Connected to +BAT.
- OUT (Pin 1):** Connected to +BAT.
- STAT1/LB0 (Pin 8):** Connected to +5V_USB through resistor R7 (1k).
- STAT2 (Pin 7):** Connected to +5V_USB through resistor R8 (1k).
- PG (Pin 6):** Connected to +5V_USB through resistor R9 (1k).
- STAT1_LED (Pin 5):** Connected to +5V_USB through resistor R10 (1k).
- STAT2_LED (Pin 4):** Connected to +5V_USB through resistor R11 (1k).
- PG_LED (Pin 3):** Connected to +5V_USB through resistor R12 (1k).
- STAT1 (Pin 1):** Connected to +5V_USB through resistor R13 (1k).
- STAT2 (Pin 2):** Connected to +5V_USB through resistor R14 (1k).
- PG (Pin 3):** Connected to +5V_USB through resistor R15 (1k).
- STAT1_LED (Pin 4):** Connected to +5V_USB through resistor R16 (1k).
- STAT2_LED (Pin 5):** Connected to +5V_USB through resistor R17 (1k).
- PG_LED (Pin 6):** Connected to +5V_USB through resistor R18 (1k).
- STAT1 (Pin 7):** Connected to +5V_USB through resistor R19 (1k).
- STAT2 (Pin 8):** Connected to +5V_USB through resistor R20 (1k).
- PG (Pin 9):** Connected to +5V_USB through resistor R21 (1k).
- STAT1_LED (Pin 10):** Connected to +5V_USB through resistor R22 (1k).
- STAT2_LED (Pin 11):** Connected to +5V_USB through resistor R23 (1k).
- PG_LED (Pin 12):** Connected to +5V_USB through resistor R24 (1k).
- STAT1 (Pin 13):** Connected to +5V_USB through resistor R25 (1k).
- STAT2 (Pin 14):** Connected to +5V_USB through resistor R26 (1k).
- PG (Pin 15):** Connected to +5V_USB through resistor R27 (1k).
- STAT1_LED (Pin 16):** Connected to +5V_USB through resistor R28 (1k).
- STAT2_LED (Pin 17):** Connected to +5V_USB through resistor R29 (1k).
- PG_LED (Pin 18):** Connected to +5V_USB through resistor R30 (1k).
- STAT1 (Pin 19):** Connected to +5V_USB through resistor R31 (1k).
- STAT2 (Pin 20):** Connected to +5V_USB through resistor R32 (1k).
- PG (Pin 21):** Connected to +5V_USB through resistor R33 (1k).
- STAT1_LED (Pin 22):** Connected to +5V_USB through resistor R34 (1k).
- STAT2_LED (Pin 23):** Connected to +5V_USB through resistor R35 (1k).
- PG_LED (Pin 24):** Connected to +5V_USB through resistor R36 (1k).
- STAT1 (Pin 25):** Connected to +5V_USB through resistor R37 (1k).
- STAT2 (Pin 26):** Connected to +5V_USB through resistor R38 (1k).
- PG (Pin 27):** Connected to +5V_USB through resistor R39 (1k).
- STAT1_LED (Pin 28):** Connected to +5V_USB through resistor R40 (1k).
- STAT2_LED (Pin 29):** Connected to +5V_USB through resistor R41 (1k).
- PG_LED (Pin 30):** Connected to +5V_USB through resistor R42 (1k).
- STAT1 (Pin 31):** Connected to +5V_USB through resistor R43 (1k).
- STAT2 (Pin 32):** Connected to +5V_USB through resistor R44 (1k).
- PG (Pin 33):** Connected to +5V_USB through resistor R45 (1k).
- STAT1_LED (Pin 34):** Connected to +5V_USB through resistor R46 (1k).
- STAT2_LED (Pin 35):** Connected to +5V_USB through resistor R47 (1k).
- PG_LED (Pin 36):** Connected to +5V_USB through resistor R48 (1k).
- STAT1 (Pin 37):** Connected to +5V_USB through resistor R49 (1k).
- STAT2 (Pin 38):** Connected to +5V_USB through resistor R50 (1k).
- PG (Pin 39):** Connected to +5V_USB through resistor R51 (1k).
- STAT1_LED (Pin 40):** Connected to +5V_USB through resistor R52 (1k).
- STAT2_LED (Pin 41):** Connected to +5V_USB through resistor R53 (1k).
- PG_LED (Pin 42):** Connected to +5V_USB through resistor R54 (1k).
- STAT1 (Pin 43):** Connected to +5V_USB through resistor R55 (1k).
- STAT2 (Pin 44):** Connected to +5V_USB through resistor R56 (1k).
- PG (Pin 45):** Connected to +5V_USB through resistor R57 (1k).
- STAT1_LED (Pin 46):** Connected to +5V_USB through resistor R58 (1k).
- STAT2_LED (Pin 47):** Connected to +5V_USB through resistor R59 (1k).
- PG_LED (Pin 48):** Connected to +5V_USB through resistor R60 (1k).
- STAT1 (Pin 49):** Connected to +5V_USB through resistor R61 (1k).
- STAT2 (Pin 50):** Connected to +5V_USB through resistor R62 (1k).
- PG (Pin 51):** Connected to +5V_USB through resistor R63 (1k).
- STAT1_LED (Pin 52):** Connected to +5V_USB through resistor R64 (1k).
- STAT2_LED (Pin 53):** Connected to +5V_USB through resistor R65 (1k).
- PG_LED (Pin 54):** Connected to +5V_USB through resistor R66 (1k).
- STAT1 (Pin 55):** Connected to +5V_USB through resistor R67 (1k).
- STAT2 (Pin 56):** Connected to +5V_USB through resistor R68 (1k).
- PG (Pin 57):** Connected to +5V_USB through resistor R69 (1k).
- STAT1_LED (Pin 58):** Connected to +5V_USB through resistor R70 (1k).
- STAT2_LED (Pin 59):** Connected to +5V_USB through resistor R71 (1k).
- PG_LED (Pin 60):** Connected to +5V_USB through resistor R72 (1k).
- STAT1 (Pin 61):** Connected to +5V_USB through resistor R73 (1k).
- STAT2 (Pin 62):** Connected to +5V_USB through resistor R74 (1k).
- PG (Pin 63):** Connected to +5V_USB through resistor R75 (1k).
- STAT1_LED (Pin 64):** Connected to +5V_USB through resistor R76 (1k).
- STAT2_LED (Pin 65):** Connected to +5V_USB through resistor R77 (1k).
- PG_LED (Pin 66):** Connected to +5V_USB through resistor R78 (1k).
- STAT1 (Pin 67):** Connected to +5V_USB through resistor R79 (1k).
- STAT2 (Pin 68):** Connected to +5V_USB through resistor R80 (1k).
- PG (Pin 69):** Connected to +5V_USB through resistor R81 (1k).
- STAT1_LED (Pin 70):** Connected to +5V_USB through resistor R82 (1k).
- STAT2_LED (Pin 71):** Connected to +5V_USB through resistor R83 (1k).
- PG_LED (Pin 72):** Connected to +5V_USB through resistor R84 (1k).
- STAT1 (Pin 73):** Connected to +5V_USB through resistor R85 (1k).
- STAT2 (Pin 74):** Connected to +5V_USB through resistor R86 (1k).
- PG (Pin 75):** Connected to +5V_USB through resistor R87 (1k).
- STAT1_LED (Pin 76):** Connected to +5V_USB through resistor R88 (1k).
- STAT2_LED (Pin 77):** Connected to +5V_USB through resistor R89 (1k).
- PG_LED (Pin 78):** Connected to +5V_USB through resistor R90 (1k).
- STAT1 (Pin 79):** Connected to +5V_USB through resistor R91 (1k).
- STAT2 (Pin 80):** Connected to +5V_USB through resistor R92 (1k).
- PG (Pin 81):** Connected to +5V_USB through resistor R93 (1k).
- STAT1_LED (Pin 82):** Connected to +5V_USB through resistor R94 (1k).
- STAT2_LED (Pin 83):** Connected to +5V_USB through resistor R95 (1k).
- PG_LED (Pin 84):** Connected to +5V_USB through resistor R96 (1k).
- STAT1 (Pin 85):** Connected to +5V_USB through resistor R97 (1k).
- STAT2 (Pin 86):** Connected to +5V_USB through resistor R98 (1k).
- PG (Pin 87):** Connected to +5V_USB through resistor R99 (1k).
- STAT1_LED (Pin 88):** Connected to +5V_USB through resistor R100 (1k).
- STAT2_LED (Pin 89):** Connected to +5V_USB through resistor R101 (1k).
- PG_LED (Pin 90):** Connected to +5V_USB through resistor R102 (1k).
- STAT1 (Pin 91):** Connected to +5V_USB through resistor R103 (1k).
- STAT2 (Pin 92):** Connected to +5V_USB through resistor R104 (1k).
- PG (Pin 93):** Connected to +5V_USB through resistor R105 (1k).
- STAT1_LED (Pin 94):** Connected to +5V_USB through resistor R106 (1k).
- STAT2_LED (Pin 95):** Connected to +5V_USB through resistor R107 (1k).
- PG_LED (Pin 96):** Connected to +5V_USB through resistor R108 (1k).
- STAT1 (Pin 97):** Connected to +5V_USB through resistor R109 (1k).
- STAT2 (Pin 98):** Connected to +5V_USB through resistor R110 (1k).
- PG (Pin 99):** Connected to +5V_USB through resistor R111 (1k).
- STAT1_LED (Pin 100):** Connected to +5V_USB through resistor R112 (1k).
- STAT2_LED**

Charger IC

VPCC:
 Reduce charging when under 1.23V
 $1.23V \geq R2 / (R1 + R2) * V_{MIN}$
 CE:
 H=Charging enabled
 SEL:
 L=USB input
 H=AC-DC adapter input
 TE:
 L=Charge timer enabled
 PROG1:
 $I_{REG}=1000/R_{PROG1}$
 * via USB, 500 mA is max
 * precondition is 10% of I_{REG}
 PROG2:
 $L=100mA$ USB current limit
 $H=500mA$ USB current limit
 PROG3:
 $I_{TERM}=1000/R_{PROG3}$



Attribution–ShareAlike 4.0 International License. This work is licensed under a Creative Commons			
Martin Vladkov Sotirov <martin@libtec.org> LibTec.org			
Sheet: / File: batt_charger.kicad_sch			
Title: BATT-CHARGER			
Size: A4		Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1	

Attribution–ShareAlike 4.0 International License.
 This work is licensed under a Creative Commons
 Martin Vladkov Sotirov <martin@libtec.org>
LibTec.org
 Sheet: /
 File: batt_charger.kicad_sch
Title: BATT-CHARGER

Size: A4	Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1

Attribution–ShareAlike 4.0 International License.
 This work is licensed under a Creative Commons
 Martin Vladkov Sotirov <martin@libtec.org>
LibTec.org
 Sheet: /
 File: batt_charger.kicad_sch
Title: BATT-CHARGER

Size: A4	Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1

Attribution–ShareAlike 4.0 International License.
 This work is licensed under a Creative Commons
 Martin Vladkov Sotirov <martin@libtec.org>
LibTec.org
 Sheet: /
 File: batt_charger.kicad_sch
Title: BATT-CHARGER

Size: A4	Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1

Attribution–ShareAlike 4.0 International License.
 This work is licensed under a Creative Commons
 Martin Vladkov Sotirov <martin@libtec.org>
LibTec.org
 Sheet: /
 File: batt_charger.kicad_sch
Title: BATT-CHARGER

Size: A4	Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1

Attribution–ShareAlike 4.0 International License.
 This work is licensed under a Creative Commons
 Martin Vladkov Sotirov <martin@libtec.org>
LibTec.org
 Sheet: /
 File: batt_charger.kicad_sch
Title: BATT-CHARGER

Size: A4	Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1

Attribution–ShareAlike 4.0 International License.
 This work is licensed under a Creative Commons
 Martin Vladkov Sotirov <martin@libtec.org>
LibTec.org
 Sheet: /
 File: batt_charger.kicad_sch
Title: BATT-CHARGER

Size: A4	Date: 2023-08-23	Rev: 1
KiCad E.D.A. kicad 7.0.7		Id: 1/1